Laboratory Data Consultants, Inc. Data Validation Report

Project/Site Name: Ballfields Parcels at DoDHF Novato, CA

Collection Date: April 6, 2005

LDC Report Date: June 14, 2005

Matrix: Water

Parameters: Volatiles

Validation Level: NFESC Level III & IV

Laboratory: Columbia Analytical Services, Inc.

Sample Delivery Group (SDG): K2502571

Sample Identification

TO63-R3-GW01-ER

TO63-R3-GW01

TO63-R3-GW01-Dup

TO63-R4-GW01**

TO63-R5-GW01

TO63-R3-GW01-FB

TO63-R2-GW01

TO63-R1-GW01

TO63-R3-GW01MS

TO63-R3-GW01MSD

^{**}Indicates sample underwent NFESC Level IV review

Introduction

This data review covers 10 water samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8260B for Volatiles.

The review follows the Final Sampling and Analysis Plan for Preliminary Assessment/Site Investigation of Ballfields Parcels at DoDHF Novato, California, (March 23, 2005) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review (October 1999) as there are no current guidelines for the methods stated above.

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified a P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

Blanks are summarized in Section III.

Field duplicates are summarized in Section XIII.

Samples indicated by a double asterisk on the front cover underwent NFESC Level IV review. NFESC Level III review was performed on all of the other samples. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria since this review is based on QC data.

The following are definitions of the data qualifiers:

- U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.
- J Indicates an estimated value.
- R Quality control indicates the data is not usable.
- N Presumptive evidence of presence of the constituent.
- UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.
- A Indicates the finding is based upon technical validation criteria.
- P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 15.0% for each individual compound and less than or equal to 30.0% for calibration check compounds (CCCs) with the following exceptions:

Date	Compound	%RSD	Associated Samples	Flag	A or P
4/13/05	Methylene chloride	17.6	All samples in SDG K2502571	J (all detects) UJ (all non-detects)	А

In the case where %RSD was greater than 15.0%, the laboratory used a calibration curve to evaluate the compound. All coefficients of determination (r²) were greater than or equal to 0.990.

Average relative response factors (RRF) for all volatile target compounds and system performance check compounds (SPCCs) were greater than or equal to 0.05 as required.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs).

The percent difference (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration RRF values for all system performance check compounds (SPCCs) were within method criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No volatile contaminants were found in the method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XII. Compound Quantitation and CRQLs

All compound quantitation and CRQLs were within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was within validation criteria for samples on which NFESC Level IV review was performed. Raw data were not evaluated for the samples reviewed by NFESC Level III criteria.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples TO63-R3-GW01 and TO63-R3-GW01-Dup were identified as field duplicates. No volatiles were detected in any of the samples with the following exceptions:

	Concent		
Compound	TO63-R3-GW01	TO63-R3-GW01-Dup	RPD
trans-1,2-Dichloroethene	0.19	0.18	5
cis-1,2-Dichloroethene	6.5	6.3	3
Trichloroethene	0.28	0.27	4
Toluene	0.56	1.1	65
Bromomethane	0.50U	0.87	200

XVII. Field Blanks

Sample TO63-R3-GW01-FB was identified as a field blank. No volatile contaminants were found in this blank with the following exceptions:

Field Blank ID	Compound	Concentration (ug/L)
TO63-R3-GW01-FB	Acetone	5.2
	Chloroform	0.80
	Bromodichloromethane	0.51
	Toluene	0.59
	Dibromochloromethane	0.28

Sample T063-R3-GW01-ER was identified as an equipment rinsate. No semivolatile contaminants were found in this blank with the following exceptions:

Equipment Rinsate ID	Compound	Concentration (ug/L)
TO63-R3-GW01-ER	Acetone Chloroform Bromodichloromethane Toluene Dibromochloromethane	4.4 0.78 0.50 1.3 0.25

Ballfields Parcels at DoDHF Novato, CA Volatiles - Data Qualification Summary - SDG K2502571

SDG	Sample	Compound	Flag	A or P	Reason
K2502571	TO63-R3-GW01-ER TO63-R3-GW01-Dup TO63-R4-GW01** TO63-R5-GW01 TO63-R3-GW01-FB TO63-R2-GW01 TO63-R1-GW01	Methylene chloride	J (all detects) UJ (all non-detects)	Α	Initial calibration (%RSD)

Ballfields Parcels at DoDHF Novato, CA Volatiles - Laboratory Blank Data Qualification Summary - SDG K2502571

No Sample Data Qualified in this SDG

Analytical Results

Client:

Battelle Memorial Institute Novato Ballfields/G486063

Project: Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/07/2005

Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name:

TO63-R3-GW01-ER

Lab Code:

K2502571-001

Extraction Method: Analysis Method:

EPA 5030B

8260B

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	4.4 J	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND U UJ	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	0.78	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	0.50	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	1.3	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

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SuperSet Reference:

Page 1 of 2

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RR47268

Analytical Results

Client: Project: **Battelle Memorial Institute** Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/07/2005 **Date Received:** 04/08/2005

Volatile Organic Compounds

Sample Name:

TO63-R3-GW01-ER

Lab Code:

K2502571-001

Extraction Method: Analysis Method:

EPA 5030B 8260B

Units: ug/L Basis: NA

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	0.25	J	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethanc	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	108	80-119	04/20/05	Acceptable
Toluene-d8	109	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable

Comments:

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Form 1A - Organic

SuperSet Reference:

Page 2 of 2

RR47268

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063

Sample Matrix: Water

Service Request: K2502571

Date Collected: 04/07/2005

Date Received: 04/08/2005

Extraction

Volatile Organic Compounds

Dilution

Date

Date

 Sample Name:
 TO63-R3-GW01
 Units:
 ug/L

 Lab Code:
 K2502571-002
 Basis:
 NA

 Extraction Method:
 EPA 5030B
 Level:
 Low

 Analysis Method:
 8260B

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Dichlorodifluoromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	LN U UN	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	0.19 J	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	~
1,1-Dichloroethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	6.5	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	0.28 J	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	0.56	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

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Analytical Results

Client: Project: Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/07/2005 **Date Received:** 04/08/2005

Volatile Organic Compounds

Sample Name: Lab Code:

TO63-R3-GW01 K2502571-002

Extraction Method: EPA 5030B **Analysis Method:**

8260B

Units: ug/L Basis: NA

Level: Low

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND		0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Dibromofluoromethane	107	80-119	04/20/05	Acceptable	
Toluene-d8	108	83-113	04/20/05	Acceptable	
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable	

Comments:

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Form 1A - Organic

RR47268 SuperSet Reference:

Analytical Results

Client: Project: Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571 Date Collected: 04/07/2005

Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name:

TO63-R3-GW01-DUP

Lab Code:

K2502571-003

Extraction Method:

EPA 5030B

Basis: NA Level: Low

Units: ug/L

Analysis Method: 8260B

Analyte Name	Result	0	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Dichlorodifluoromethane	ND		0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND		0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	0.87		0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND	U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane		U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone		U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND		1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND	U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride		UWU	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND		0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	0.18	J	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND	U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	6.3		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND		1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	0.27		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND		1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND		20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	1.1		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND		0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

Form 1A - Organic Page 1 of 2 Printed: 04/21/2005 12:29:13 SuperSet Reference: RR47268 u:\Stealth\Crystal.rpt\Form1m.rpt Merged

494

Analytical Results

Client: Battelle Memorial Institute Project: Novato Ballfields/G486063

Sample Matrix: Water Service Request: K2502571 Date Collected: 04/07/2005 **Date Received:** 04/08/2005

Volatile Organic Compounds

Sample Name: TO63-R3-GW01-DUP Units: ug/L Lab Code: K2502571-003 Basis: NA **Extraction Method:** EPA 5030B Level: Low

Analysis Method: 8260B

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
4-Methyl-2-pentanone (MIBK)	ND U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	***************************************
o-Xylene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Dibromofluoromethane	108	80-119	04/20/05	Acceptable	
Toluene-d8	110	83-113	04/20/05	Acceptable	
4-Bromofluorobenzene	102	72-114	04/20/05	Acceptable	

Comments:

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Form 1A - Organic

SuperSet Reference:

Page 2 of 2

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Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063

Sample Matrix: Water

 Service Request:
 K2502571

 Date Collected:
 04/07/2005

 Date Received:
 04/08/2005

Volatile Organic Compounds

 Sample Name:
 TO63-R4-GW01
 Units:
 ug/L

 Lab Code:
 K2502571-004
 Basis:
 NA

 Extraction Method:
 EPA 5030B
 Level:
 Low

Analysis Method: 8260B

	D14	0	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name	Result			0.17	1	04/20/05	04/20/05	KWG0506414	11010
Dichlorodifluoromethane	ND ND		0.50 0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloride	ND		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride				0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	0.22 ND		0.50 0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND ND		0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane				0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND ND		0.50 20	0.14 4.1	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND ND		0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene								KWG0506414	
Methyl Acetate	ND		1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND		0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND	_	2.0	0.25	1	04/20/05	04/20/05		
Methylene Chloride	ND	LNU	2.0	0.20	1	04/20/05	04/20/05	KWG0506414 KWG0506414	
Methyl tert-Butyl Ether	ND		0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND		0.50	0.15	1	04/20/05	04/20/05		
1,1-Dichloroethane	ND		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND		20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND		0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND	U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND	U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND	U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	0.53		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND	U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND	U	0.50	0.14	Tunnel	04/20/05	04/20/05	KWG0506414	

Comments:

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Form 1A - Organic

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Analytical Results

Client: Project: Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/07/2005 **Date Received:** 04/08/2005

Volatile Organic Compounds

Sample Name: Lab Code:

TO63-R4-GW01 K2502571-004

Extraction Method: Analysis Method:

EPA 5030B 8260B

Units: ug/L Basis: NA

Level: Low

	_			Dilution	Date	Date	Extraction	Moto
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
4-Methyl-2-pentanone (MIBK)	ND U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	****
Bromoform	ND U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Dibromofluoromethane Toluene-d8	106 107	80-119 83-113	04/20/05 04/20/05	Acceptable Acceptable	
4-Bromofluorobenzene	100	72-114	04/20/05	Acceptable	

Comments:

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Form 1A - Organic

497

Page 2 of 2

SuperSet Reference: RR47268

Analytical Results

Client: Project: Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571 Date Collected: 04/07/2005

04/08/2005 Date Received:

Units: ug/L

Basis: NA

Level: Low

Volatile Organic Compounds

Sample Name: Lab Code:

TO63-R5-GW01 K2502571-005

Extraction Method:

EPA 5030B

Analysis Method: 8260B Dilution Date Date Extraction Analyzed Lot Note Extracted **MRL MDL Factor** Result Q **Analyte Name** KWG0506414 04/20/05 04/20/05 ND U 0.50 0.17 1 Dichlorodifluoromethane KWG0506414 04/20/05 ND U 0.50 0.14 1 04/20/05 Chloromethane KWG0506414 04/20/05 0.22 1 04/20/05 ND U 0.50 Vinyl Chloride 04/20/05 KWG0506414 1 04/20/05 0.22 ND U 0.50 Bromomethane KWG0506414 04/20/05 1 04/20/05 ND U 0.50 0.23 Chloroethane KWG0506414 04/20/05 1 04/20/05 0.50 0.14 ND U Trichlorofluoromethane 04/20/05 KWG0506414 0.14 1 04/20/05 ND U 0.50 Trichlorotrifluoroethane 04/20/05 KWG0506414 04/20/05 4.1 1 ND U 20 Acetone KWG0506414 04/20/05 04/20/05 0.13 1 0.50 ND U 1.1-Dichloroethene KWG0506414 1 04/20/05 04/20/05 ND U 1.0 0.36 Methyl Acetate KWG0506414 04/20/05 04/20/05 ND U 0.50 0.16 1 Carbon Disulfide KWG0506414 04/20/05 04/20/05 2.0 0.25 1 ND U Diisopropyl Ether KWG0506414 04/20/05 04/20/05 LN U DN 2.0 0.20 1 Methylene Chloride KWG0506414 04/20/05 04/20/05 0.20 ND U 0.50 1 Methyl tert-Butyl Ether KWG0506414 04/20/05 0.15 1 04/20/05 ND U 0.50 trans-1,2-Dichloroethene KWG0506414 0.11 1 04/20/05 04/20/05 ND U 0.50 1,1-Dichloroethane 04/20/05 KWG0506414 04/20/05 20 2.0 1 ND U 2-Butanone (MEK) KWG0506414 04/20/05 0.50 0.12 1 04/20/05 cis-1,2-Dichloroethene ND U KWG0506414 04/20/05 04/20/05 0.14 1 ND U 0.50 Chloroform KWG0506414 04/20/05 04/20/05 1,1,1-Trichloroethane (TCA) ND U 0.50 0.12 1 KWG0506414 04/20/05 0.20 1 04/20/05 ND U 1.0 Cyclohexane KWG0506414 04/20/05 04/20/05 0.14 1 0.50 Carbon Tetrachloride ND U KWG0506414 04/20/05 04/20/05 1 ND U 0.50 0.12 1,2-Dichloroethane (EDC) KWG0506414 04/20/05 04/20/05 ND U 0.50 0.14 1 Benzene KWG0506414 04/20/05 04/20/05 0.50 0.14 1 ND U Trichloroethene (TCE) 04/20/05 04/20/05 KWG0506414 0.14 1 ND U 0.50 1,2-Dichloropropane 04/20/05 KWG0506414 04/20/05 0.11 1 ND U 0.50 Bromodichloromethane KWG0506414 04/20/05 04/20/05 ND U 1.0 0.19 1 Methylcyclohexane 04/20/05 04/20/05 KWG0506414 ND U 20 4.0 1 2-Hexanone KWG0506414 04/20/05 04/20/05 0.50 0.11 1 ND U cis-1,3-Dichloropropene KWG0506414 8 04/20/05 04/20/05 0.50 0.11 0.46 J Toluene KWG0506414 04/20/05 04/20/05 1 ND U 0.50 0.090 trans-1,3-Dichloropropene KWG0506414 04/20/05 0.50 0.14 1 04/20/05 ND U 1,1,2-Trichloroethane

Comments:

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Form 1A - Organic 498

Page 1 of

SuperSet Reference: RR47268

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063

Sample Matrix: Water

 Service Request:
 K2502571

 Date Collected:
 04/07/2005

 Date Received:
 04/08/2005

Volatile Organic Compounds

				Dilution	Date	Date	Extraction	
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
4-Methyl-2-pentanone (MIBK)	ND U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND U		0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND U		0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND U	0.50	0.14	. 1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND U		0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND U		0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	0.11 J	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND U		0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Dibromofluoromethane	106	80-119	04/20/05	Acceptable	
Toluene-d8	108	83-113	04/20/05	Acceptable	
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable	

Comments:

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Form 1A - Organic

Page 2 of 2

499

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SuperSet Reference: RR47268

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063

8260B

Sample Matrix: Water

Analysis Method:

 Service Request:
 K2502571

 Date Collected:
 04/07/2005

 Date Received:
 04/08/2005

Volatile Organic Compounds

 Sample Name:
 TO63-R3-GW01-FB
 Units:
 ug/L

 Lab Code:
 K2502571-006
 Basis:
 NA

 Extraction Method:
 EPA 5030B
 Level:
 Low

	Downle O	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
Analyte Name	Result Q	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Dichlorodifluoromethane	ND U ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride		0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND U ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane		0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichlorotrifluoroethane	ND U 5.2 J	20	4.1	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene			0.36	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND U	1.0 0.50	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND U ND U	2.0	0.10	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether			0.20	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND U (/J	2.0 0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene				1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND U	0.50	0.11 2.0	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND U	20 0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND U				04/20/05	04/20/05	KWG0506414	
Chloroform	0.80	0.50	0.14 0.12	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND U	0.50 1.0	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND U					04/20/05	KWG0506414	
Carbon Tetrachloride	ND U	0.50	0.14	1	04/20/05	04/20/03	KWG0506414	
1,2-Dichloroethane (EDC)	ND U	0.50	0.12	1	04/20/05 04/20/05	04/20/03	KWG0506414	
Benzene	ND U	0.50	0.14	1			KWG0506414	
Trichloroethene (TCE)	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND U	0.50	0.14	1	04/20/05	04/20/05 04/20/05	KWG0506414	
Bromodichloromethane	0.51	0.50	0.11	1	04/20/05			
Methylcyclohexane	ND U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414 KWG0506414	
2-Hexanone	ND U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND U	0.50	0.11	1	04/20/05	04/20/05		
Toluene	0.59	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414 KWG0506414	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0300414	

Comments:

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Form 1A - Organic

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SuperSet Reference: RR47268

Page 1 of 2

Analytical Results

Client: Project: Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/07/2005 **Date Received:** 04/08/2005

Volatile Organic Compounds

Sample Name: Lab Code:

TO63-R3-GW01-FB K2502571-006

Extraction Method:

EPA 5030B

8260B **Analysis Method:**

Units: ug/L Basis: NA Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	0.28 J	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND U	2.0	0.099	l	04/20/05	04/20/05	KWG0506414	
•	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene Ethylbenzene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
o-Xylene Styrene	ND U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
	ND U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene 1,1,2,2-Tetrachloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene 1,2-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
,	ND U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND U	2.0	0.22	ī	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND U	2.0	0.29	î	04/20/05	04/20/05	KWG0506414	
Naphthalene			0.17	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND U	2.0	0.55	1	04/20/03	0 1,20,00		

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note	
Dibromofluoromethane Toluene-d8 4-Bromofluorobenzene	108 108 100	80-119 83-113 72-114	04/20/05 04/20/05 04/20/05	Acceptable Acceptable Acceptable	

Comments:

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Form 1A - Organic

SuperSet Reference:

Page 2 of 2

501

Analytical Results

Client: Project:

Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571

Date Collected: 04/07/2005

Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: Lab Code:

TO63-R2-GW01 K2502571-007

Units: ug/L Basis: NA

Level: Low

Extraction Method:	EPA 50301
Analysis Method:	8260B

	7 . 1/ 0	MDY	MDI	Dilution		Date Analyzed	Extraction Lot	Note
Analyte Name	Result Q			Factor		04/20/05	KWG0506414	11010
Dichlorodifluoromethane	ND U		0.17	1	04/20/05 04/20/05	04/20/05	KWG0506414	
Chloromethane	ND U	0.50	0.14	1	04/20/03	04/20/05	KWG0506414	
Vinyl Chloride	ND U	0.50	0.22	1			KWG0506414	
Bromomethane	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND U	0.50	0.14	1	04/20/05	04/20/05		
Trichlorotrifluoroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414 KWG0506414	
Acetone	ND U	20	4.1	1	04/20/05	04/20/05		
1,1-Dichloroethene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	ND U	[1] 2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	0.15 J	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	0.82	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

Analytical Results

Client: Project:

Battelle Memorial Institute Novato Ballfields/G486063

Sample Matrix:

Water

Service Request: K2502571 Date Collected: 04/07/2005

Date Received: 04/08/2005

Volatile Organic Compounds

Sample Name: Lab Code:

TO63-R2-GW01 K2502571-007

Extraction Method: Analysis Method:

EPA 5030B 8260B

Units: ug/L Basis: NA

Level: Low

Analyte Name	Result Q	MRL	MDL	Dilution Factor	Date Extracted	Date Analyzed	Extraction Lot	Note
4-Methyl-2-pentanone (MIBK)	ND U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,4-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	107	80-119	04/20/05	Acceptable
Toluene-d8	107	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	101	72-114	04/20/05	Acceptable

Comments:

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Form 1A - Organic 503

2 of 2 Page

SuperSet Reference: RR47268

Analytical Results

Battelle Memorial Institute Client: Novato Ballfields/G486063 Project:

Sample Matrix: Water Service Request: K2502571 Date Collected: 04/07/2005 **Date Received:** 04/08/2005

Volatile Organic Compounds

TO63-R1-GW01 Sample Name: K2502571-008 Lab Code: EPA 5030B **Extraction Method:**

8260B **Analysis Method:**

Units: ug/L Basis: NA

Level: Low

				Dilution	Date	Date	Extraction	3 7 .
Analyte Name	Result Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
Dichlorodifluoromethane	ND U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
Chloromethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Vinyl Chloride	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Bromomethane	ND U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
Chloroethane	ND U	0.50	0.23	1	04/20/05	04/20/05	KWG0506414	
Trichlorofluoromethane	ND U	0.50	0.14	. 1	04/20/05	04/20/05	KWG0506414	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
Trichlorotrifluoroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Acetone	ND U	20	4.1	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethene	ND U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Methyl Acetate	ND U	1.0	0.36	1	04/20/05	04/20/05	KWG0506414	
Carbon Disulfide	ND U	0.50	0.16	1	04/20/05	04/20/05	KWG0506414	
Diisopropyl Ether	ND U	2.0	0.25	1	04/20/05	04/20/05	KWG0506414	
Methylene Chloride	LN U DN	2.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Methyl tert-Butyl Ether	ND U	0.50	0.20	1	04/20/05	04/20/05	KWG0506414	
trans-1,2-Dichloroethene	ND U	0.50	0.15	1	04/20/05	04/20/05	KWG0506414	
1,1-Dichloroethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
2-Butanone (MEK)	ND U	20	2.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,2-Dichloroethene	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Chloroform	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,1,1-Trichloroethane (TCA)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Cyclohexane	ND U	1.0	0.20	1	04/20/05	04/20/05	KWG0506414	
Carbon Tetrachloride	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloroethane (EDC)	ND U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
Benzene	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Trichloroethene (TCE)	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichloropropane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Bromodichloromethane	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Methylcyclohexane	ND U	1.0	0.19	1	04/20/05	04/20/05	KWG0506414	
2-Hexanone	ND U	20	4.0	1	04/20/05	04/20/05	KWG0506414	
cis-1,3-Dichloropropene	ND U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Toluene	0.86	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
trans-1,3-Dichloropropene	ND U	0.50	0.090	1	04/20/05	04/20/05	KWG0506414	
1,1,2-Trichloroethane	ND U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	

Comments:

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Form 1A - Organic 504

Page 1 of 2

SuperSet Reference: RR47268

Analytical Results

Client: Battelle Memorial Institute
Project: Novato Ballfields/G486063

Sample Matrix: Water

 Service Request:
 K2502571

 Date Collected:
 04/07/2005

 Date Received:
 04/08/2005

Volatile Organic Compounds

 Sample Name:
 TO63-R1-GW01
 Units:
 ug/L

 Lab Code:
 K2502571-008
 Basis:
 NA

 Extraction Method:
 EPA 5030B
 Level:
 Low

Analysis Method: 8260B

					Dilution	Date	Date	Extraction	
Analyte Name	Result	Q	MRL	MDL	Factor	Extracted	Analyzed	Lot	Note
4-Methyl-2-pentanone (MIBK)	ND	U	20	2.7	1	04/20/05	04/20/05	KWG0506414	
Tetrachloroethene (PCE)	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
Dibromochloromethane	ND		0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromoethane (EDB)	ND	U	2.0	0.099	1	04/20/05	04/20/05	KWG0506414	
Chlorobenzene	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
Ethylbenzene	ND	U	0.50	0.13	1	04/20/05	04/20/05	KWG0506414	
m,p-Xylenes	ND	U	0.50	0.22	1	04/20/05	04/20/05	KWG0506414	
o-Xylene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
Styrene	ND	U	0.50	0.095	1	04/20/05	04/20/05	KWG0506414	
Bromoform	ND	U	0.50	0.28	1	04/20/05	04/20/05	KWG0506414	
Isopropylbenzene	ND	U	2.0	0.11	1	04/20/05	04/20/05	KWG0506414	
1,1,2,2-Tetrachloroethane	ND	U	0.50	0.14	1	04/20/05	04/20/05	KWG0506414	
1,3-Dichlorobenzene	ND	U	0.50	0.11	1	04/20/05	04/20/05	KWG0506414	
1.4-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dichlorobenzene	ND	U	0.50	0.12	1	04/20/05	04/20/05	KWG0506414	
1,2-Dibromo-3-chloropropane	ND	U	2.0	1.0	1	04/20/05	04/20/05	KWG0506414	
1,2,4-Trichlorobenzene	ND	U	2.0	0.22	1	04/20/05	04/20/05	KWG0506414	
Naphthalene	ND	U	2.0	0.29	1	04/20/05	04/20/05	KWG0506414	
Bromochloromethane	ND	U	0.50	0.17	1	04/20/05	04/20/05	KWG0506414	
1,2,3-Trichlorobenzene	ND	U	2.0	0.33	1	04/20/05	04/20/05	KWG0506414	

Surrogate Name	%Rec	Control Limits	Date Analyzed	Note
Dibromofluoromethane	107	80-119	04/20/05	Acceptable
Toluene-d8	108	83-113	04/20/05	Acceptable
4-Bromofluorobenzene	99	72-114	04/20/05	Acceptable

Comments:

Page 2 of 2 eference: RR47268

VALIDATION COMPLETENESS WORKSHEET LDC #: 13575D1 Level III/IV SDG #: K2502571

Laboratory: Columbia Analytical Services

Reviewer: 2nd Reviewer:

METHOD: GC/MS Volatiles (EPA SW 846 Method 8260B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/6/05
11,	GC/MS Instrument performance check	4	· '
III.	Initial calibration	W	70 PS D < 30/15. SPECES
IV.	Continuing calibration	\forall	70 PS D 530/15. SPECS 70 D 520. 1CV 5 75/0 4
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	₩.	
VIII.	Laboratory control samples	\$	109
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	_₽	
XI.	Target compound identification	4	Not reviewed for Level III validation.
XII.	Compound quantitation/CRQLs	A	Not reviewed for Level III validation.
XIII.	Tentatively identified compounds (TICs)	N	Not reviewed for Level III validation.
XIV.	System performance	4	Not reviewed for Level III validation.
XV.	Overall assessment of data	4	
XVI.	Field duplicates	W	D = 2+ 3>
XVII.	Field blanks	AW	eR=1. fB=6.

Note:

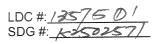
A = Acceptable N = Not provided/applicable SW = See worksheet

ND = No compounds detected

R = Rinsate FB = Field blank D = Duplicate TB = Trip blank EB = Equipment blank

Validated Samples: ** Indicates sample underwent Level IV validation

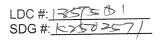
M	H2() >				
1	TO63-R3-GW01-ER	11	HW40516414-4	21	31
2 ,	TO63-R3-GW01	12	//	22	32
3	TO63-R3-GW01-Dup	13		23	33
4	TO63-R4-GW01**	14		24	34
5	TO63-R5-GW01	15		25	35
6	TO63-R3-GW01-FB	16		26	36
7	TO63-R2-GW01	17		27	37
8	TO63-R1-GW01	18		28	38
9	TO63-R3-GW01MS	19		29	39
10	TO63-R3-GW01MSD	20		30	40



VALIDATION FINDINGS CHECKLIST

Method: Volatiles (EPA SW 846 Method 8260B)

Method: Volatiles (EPA SW 846 Method 8260B)			Ī	
Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times			Γ	a de la companione de l
All technical holding times were met.				
Cooler temperature criteria was met.	L_			
II. GC/MS Instrument performance check	Γ		<u> </u>	
Were the BFB performance results reviewed and found to be within the specified criteria?				
Were all samples analyzed within the 12 hour clock criteria?				
III. Initial calibration			ı	
Did the laboratory perform a 5 point calibration prior to sample analysis?				
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	_			
Was a curve fit used for evaluation?				
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?	/			
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?				
IV. Continuing calibration				A Committee of the Comm
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?				
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	/			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?				
V. Blanks				
Was a method blank associated with every sample in this SDG?				
Was a method blank analyzed at least once every 12 hours for each matrix and concentration?				
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.				
VI. Surrogate spikes				
Were all surrogate %R within QC limits?				
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?				
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.				
Was a MS/MSD analyzed every 20 samples of each matrix?				
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?				
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?				



VALIDATION FINDINGS CHECKLIST

Page: Of Page: Post Pa

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per analytical batch?				
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?				
IX Regional Quality Assurance and Quality Control			ı	
Were performance evaluation (PE) samples performed?				
Were the performance evaluation (PE) samples within the acceptance limits?				
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?				
Were retention times within ± 30 seconds of the associated calibration standard?				
XI. Target compound identification			r	Control of the Contro
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	/			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?				
Were chromatogram peaks verified and accounted for?				
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	/			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	/			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			/	
Were relative intensities of the major ions within \pm 20% between the sample and the reference spectra?			/	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?				
XIV. System performance				
System performance was found to be acceptable.				
XV. Overall assessment of data		ı.	1	
Overall assessment of data was found to be acceptable.				
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	1			
Target compounds were detected in the field duplicates.				
XVII. Field blanks				
Field blanks were identified in this SDG.				
Target compounds were detected in the field blanks.	/		<u> </u>	

TARGET COMPOUND WORKSHEET

METHOD: VOA (EPA SW 846 Method 8260B)

A. Chloromethane*	U. 1,1,2-Trichloroethane	OO. 2,2-Dichloropropane	III. n-Butylbenzene	CCCC.1-Chlorohexane
B. Bromomethane	V. Benzene	PP. Eromochloromethane	JJJ. 1,2-Dichlorobenzene	DDDD. Isopropyl alcchol
C. Vnyl choride**	W. trans-1,3-Dichloropropene	QQ. 1,1-Dichloropropene	KKK. 1,2,4-Trichlorobenzene	EEEE. Acetonitrile
D. Chloroethane	X. Bromoform*	RR. Dibromomethane	LLL. Hexachlorobuladiene	FFFF. Acrolein
E. Wethylene chloride	Y. 4-Methyl-2-pentanone	SS. 1,3-Dichloropropane	MMM. Naphthalene	GGGG. Acrylonitrile
F. Acetone	Z. 2-Hexanone	TT. 1,2-Dibromoethane	NNN. 1,2,3-Trichlorobenzene	HHHH. 1,4-Dioxane
G. Carbon disulfide	AA. Tetrachloroethene	UU. 1,1,1,2-Tetrachloroethane	OOO. 1,3,5-Trichlcrobenzene	IIII. Isobutyl alcohol
H. 1,1-Dichloroethene**	BB. 1,1,2,2-Tetrachloroethane*	VV. Isopropylbenzene	PPP. trans-1,2-Dichloroethene	JJJJ. Methacrylonitrile
I. 1,1-Dichloroethane*	CC. Toluene**	WW. Bromobenzene	QQQ. cis-1,2-Dichloroethene	KKKK. Propionitrile
J. 1,2-Dichloroethene, total	DD. Chlorobenzene*	XX. 1,2,3-Trichloropropane	RRR. m.p-Xylenes	LLLL.
K. Chloroform**	EE. Ethylbenzene**	YY. n-Propylbenzene	SSS. o-Xylene	ммми.
L. 12-Dichloroethane	FF. Styrene	ZZ. 2-Chlorotoluene	TTT. 1,1,2-Trichloro-1,2,2-trifluoroethane	NNN.
M. 2-Butanone	GG. Xylenes, total	AAA. 1,3,5-Trimethylbenzene	UUU. 1,2-Dichloroletrafluoroethane	0000.
N. 1,1,1-Trichloroethane	HH. Vinyl acetate	BBB. 4-Chlorotoluene	VVV. 4-Ethyltoluene	рррр.
O. Carbon tetrachloride	II. 2-Chlorœthylvinyl ether	CCC. tert-Butylbenzene	WWW. Ethanol	ବରବର.
P. Bromodichloromethane	JJ. Dichlorodifluoromethane	DDD. 1,2,4-Trimethylbenzene	XXX. Di-isopropyl ether	RRRR.
Q. ',2-Dichloropropane**	KK. Trichlorofluoromethane	EEE. sec-Butylbenzene	YYY, tert-Butanol	SSSS.
R. cis-1,3-Dichloropropene	LL. Methyl-tert-butyl ether	FFF. 1,3-Dichlorobenzene	ZZZ. tert-Butyl alcohol	TTTT.
S. Trichloroethene	MM. 1,2-Dibromo-3-chloropropane	GGG. p-isopropyltoluene	AAAA. Ethyl tert-butyl ether	บบบบ.
T. Dibromochloromethane	NN. Methy ethyl ketone	HHH. 1,4-Dichlorobenzene	BBBB. tert-Amyl methyl ether	vvvv.

^{* =} System performance check compounds (SPCC) for RRF; ** = Calibration check compounds (CCC) for %RSD.

SDG #: 556257 LDC #: 1355755⊕

VALIDATION FINDINGS WORKSHEET Initial Calibration

₹ Page: Reviewer: 2nd Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Did the laboratory perform a 5 point calibration prior to sample analysis? Were percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCC's and SPCC's?

Was a curve fit used for evaluation? If yes, what was the acceptance criteria used for evaluation?

Did the initial calibration meet the acceptance criteria?

Were all %RSDs and RRFs within the validation criteria of ≤30 %RSD and ≥0.05 RRF?

			ī	T	T													
Construction of the second construction of the s	Qualifications	もしってフ																
	Associated Samples	W +84																
	Finding RRF (Limit: ≥0.05)															-		
	Finding %RSD (Limit: ≤30.0%)	(5) >) 9.2)					,											
	Compound																	
	Standard ID	Stern	·								79.							
	Date	4/3/05																
-	*	- 3																

LDC #: 1357501 SDG #: 1250257

VALIDATION FINDINGS WORKSHEET Field Duplicates

Page:	<u>/</u> of/
Reviewer:	9
2nd reviewer:_	
	/

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y	N	N/A
Y/	N	N/A

Were field duplicate pairs identified in this SDG? Were target compounds detected in the field duplicate pairs?

			
	Concentration	(Nph)	
Compound	Military and Control of the Control	3	RPD
244	0.19	0.18	5
	6.5	6.3	3
888	0 28	0.27	4
3	0.56	1.1	65
2	0.50 V	0.87	200

	Concentration	()	
Compound			RPD
			•
		L	

	Concentration	()	
Compound			RPD
- Compound			
			<u> </u>

	Concentration ()	
Compound		RPD
·		

LDC #: 1357501 SDG #: K202571

VALIDATION FINDINGS WORKSHEET Field Blanks

Page:_	/of_/
Reviewer:	9_
2nd reviewer:	
	7

METHOD: G	C/MS VOA (EP.	A SW 846 Method 8260B)	
Y N N/A Y N N/A	Were field bl	lanks identified in this SDG? compounds detected in the field blanks?	
Sample:		Field Blank / Trip Blank Rinsate / Other	(circle one)
		Compound	Concentration Units (
F			4.4
*			0.78
P			0.50
¿c_	****		1.3
<u> </u>			0.25
<u> </u>			
Sample: <u>&</u>	>	Field Blank / Trip Blank / Rinsate / Other	(circle one)
		Compound	Concentration Units (👉)
F			5.2,
FR			0.80
D C			0.51
Ec			0.59
T			0.38
Sample:		Field Blank / Trip Blank / Rinsate / Other	(circle one)
		Compound	Concentration Units ()
200000000000000000000000000000000000000			

LDC #: [3575.00 | SDG #: EXS237

VALIDATION FINDINGS WORKSHEET Initial Calibration Calculation Verification

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

 $\label{eq:RF} RRF = (A_{\nu})(G_{\nu})/(A_{\nu})(G_{\nu})$ average RRF = sum of the RRFs/number of standards %RSD = 100 * (S/X)

 $A_{\rm k} = {\rm Area~of~associated~internal~standard}$ ${\rm npound,} \qquad {\rm C_{\rm k}} = {\rm Concentration~of~internal~standard}$

 $A_x = Area$ of compound, $A_s = Are$ $C_x = Concentration of compound, <math>C_s = Cc$ S = Standard deviation of the RFFs <math>X = Mean of the RRFs

				Reported	Recalculated	Reported	Recalculated	Reported	Recalculated
#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	RRF (/Ø std)	RRF (/ Ø std)	Average RRF (initial)	Average RRF (initial)	%RSD	%RSD
-	7/0)		ard)	6/2.0	6.272	0.292	0.392	17.6	17.7
			Frichlorethene (2nd internal standard)	2.495 0.495	0.495	0.483	 	4.5	4.5
			MILI IV Toluene (3rd internal standard)	0.568		0.547	0.547	13.8	13.7
2			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)						WANTER BOTH THE CALL AND
			Toluene (3rd internal standard)						
3			Methylene chloride (1st internal standard)						
			Trichlorethene (2nd internal standard)					TO A	
			Toluene (3rd internal standard)						Service de la companya del la companya de la compan
4			Methylene chloride (1st internal standard)						
			Trichlorethere (2nd internal standard)						management of the state of the
			Toluene (3rd internal standard)					And the second s	

Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results. Comments:

SDG #: K>50257 LDC #: 1385750

Continuing Calibration Results Verification VALIDATION FINDINGS WORKSHEET

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oţo, 2nd Reviewer: Page:__ Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8250B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF RFF = (A_)(C_{\rm k})/(A_{\rm k})(C_{\rm s})

Where: ave. RRF = initial calibration average RRF

RRF = continuing calibration RRF

 $A_{\rm s}=$ Area of associated internal standard $C_{\rm s}=$ Concentration of internal standard

 $A_x = Area of compound,$ $<math>C_x = Concentration of compound,$

The second secon	THE RESERVE THE PROPERTY OF TH					Docalaniated	Benorted	Recalculated
					пароцец	Decalculated	5000	
*	Standard ID	Calibration Date	Compound (Reference internal Standard)	Average RRF (initial)	RRF (CC)	RRF (CC)	Q%	Q%
╫┈	NZVEDO 3	4	Methylene chloride (1st internal standard)	6.292	275	0.275	9	9
3			Tricheration (2nd internal standard)	Ι,	1.67.0	0.497	· · · · · · · · · · · · · · · · · · ·	Q
	and-dryatory to see a mail and real desirably seems to desire		MINA Foliene (3rd internal standard)	\Box	0.506	0.506	berenn	Control
2			Methylene chloride (1st internal standard)				And and the second seco	ah terhamolistes transpuolisiaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaaa
	anna destricti de processione en destructura de la constitución de la constitución de defense de destructura d		Trichlorethene (2nd internal standard)					
	And de des controllers of the control of the contro		Toluene (3rd internal standard)					
8			Methylene chloride (1st internal standard)					
			Trichlorethene (2nd internal standard)					AND THE PROPERTY OF THE PROPER
	ANNA MATERIAL PROPERTY OF THE		Toluene (3rd internal standard)					
4			Methylene chloride (1st internal standard)					
	en side open og og open og en	T	Trichlorethene (2nd internal standard)				,	
			Toluene (3rd internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results. LDC #: 1357501 SDG #: K250257

VALIDATION FINDINGS WORKSHEET <u>Surrogate Results Verification</u>

Page: _____of___ Reviewer: ______ 2nd reviewer: ______

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries	(%R)	of surrogates	were	recalculated	for the compounds	identified	below	using t	he following	calculation:
------------------------	------	---------------	------	--------------	-------------------	------------	-------	---------	--------------	--------------

% Recovery: SF/SS * 100

Where: SF = Surrogate Found

SS = Surrogate Spiked

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8	10	10.66	107	107	0
Bromofluorobenzene	1	10.04	100	100	0
1,2-Dichloroethane-d4			丝		
Dibromofluoromethane	10	10.62	106	106	

Sample ID:

•	Surrogate Spiked	Surrogate Found	Porcent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

Sample ID:

-	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Toluene-d8					
Bromofluorobenzene					
1,2-Dichloroethane-d4					
Dibromofluoromethane					

LDC #: |35[5D| SDG #: k252257

VALIDATION FINDINGS WORKSHEET Matrix Spike/Matrix Spike Duplicates Results Verification

Page: ___of___ Reviewer: ______ 2nd Reviewer: ______

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA

Where: SSC = Spiked sample concentration SA = Spike added

SC = Sample concentration

RPD = I MSC - MSDC I * 2/(MSC + MSDC)

MSC = Matrix spike percent recovery

MSDC = Matrix spike duplicate percent recovery

MS/MSD sample: 8/10

	ds	ike	Sample	Spiked Sample	ample	Matrix Spike	spike	Matrix Spike Duplicate	Duplicate	MS	MS/MSD
Compound	Ad Ad	Added (Concentration ()	Concentration	tration	Percent Recovery	ecovery	Percent Recovery	ecovery		RPD
	MS	MSD)	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	1.0	(0)	A 2	0.11	W. 11	011	9]]	811	13	Λ	M
Trichloroethene			850	.5.0)	10.5	(02	102	102	102	0	0
Benzene			AN	9.83	. 01	<i>a</i>	28	1 01	101		M
Toluene			9.5%	4.01	9.01	99	99	100	(00)	1	~
Chlorobenzene		<u> </u>	47	896	9,68 9.83	97	26	26	26	~	

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

SDG #: F28225 (DC #: 135/20)

Laboratory Control Sample Results Verification VALIDATION FINDINGS WORKSHEET

Page: 2nd Reviewer: Reviewer:

METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA

LCS ID: KW 40506414-3

RPD = 1 LCS - LCSD I * 2/(LCS + LCSD)

SSC = Spiked sample concentration SA = Spike added Where:

LCS = Laboraotry control sample percent recovery

LCSD = Laboratory control sample duplicate percent recovery

	ds s	ike	Spiked S	ample	SOT	S	GSOT	٥	TCS/TCSD	csp
Compound	Ad)	Added	Concentration	ration 2,7	Percent Recovery	ecovery	Percent Recovery	ecovery	RPD	Q
	SOT	LCSD))	CCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
1,1-Dichloroethene	0)	¥	-z·0)	N.Y.	~ (O)	(02	:			
Trichloroethene			18.6	-	86	28				
Benzene			9.32		43	93				
Toluene			9.57		96	96				
Chlorobenzene		\	4.54	\	95	95				
										,
										AND THE PROPERTY OF THE PROPER

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

VALIDATION FINDINGS WORKSHEET **Sample Calculation Verification**

Page:_	/of_/_
Reviewer:	9
2nd reviewer:	0/
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METHOD: GC/MS VOA (EPA SW 846 Method 8260B)

Y N N/A Y/N N/A Were all reported results recalculated and verified for all level IV samples?

Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $(A_*)(I_*)(DF)$ $\overline{(A_{is})(RRF)(V_o)(\%S)}$

Area of the characteristic ion (EICP) for the

compound to be measured

Area of the characteristic ion (EICP) for the specific internal standard

Amount of internal standard added in nanograms

Relative response factor of the calibration standard. RRF

Volume or weight of sample pruged in milliliters (ml) V_{o}

or grams (g). Dilution factor.

Df Percent solids, applicable to soils and solid matrices %S

Example:

Sample I.D. 4, CC

700	only.					
		Compound	·	Reported Concentration ()	Calculated Concentration ()	Qualification
#	Sample ID	Compound				
 						
-						
<u> </u>						
-						